DEC STD 119-5 Process for Design, Evaluation, Testing, and Certification of Hardware Products to Product Safety Requirements

DOCUMENT IDENTIFIER: A-DS-EL00119-05-0000 Rev D, 19-Jun-1992

ABSTRACT: This document specifies the process to be followed by Product Safety and Design Engineering groups to ensure that hardware products manufactured or sold by Digital are designed to comply with internal and external product safety standards, and are certified to these standards by independent, external agencies.

APPLICABILITY: The requirements of this standard are mandatory for all Product Safety and Design Engineering personnel involved in the design and development of hardware products and systems manufactured or sold by Digital.

STATUS: APPROVED 19-Jun-1992; use VTX SMC for current status.

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1 INTRODUCTION

1.1 PURPOSE

This document specifies the process to be followed by Product Management, Design Engineering, and Product Safety Engineering to ensure that each hardware product developed by Digital is compliant. Compliance is defined as meeting internal and external product safety standards and as obtaining all necessary external agency product safety certifications within the time frames defined under heading 2.

The process involves:

- Identifying parties responsible for the design, evaluation, testing, and certification of the product as meeting safety requirements.
- Identifying major product safety milestones that must be completed during the development of a product. These milestones supplement the minimum set of milestones specified in *DEC STD 028-0 Phase Review Policy.*
- Identifying who is responsible for each milestone.
- Determining when each milestone must be completed by relating the process to DEC STD 028-0.

Paragraphs under heading 2 defines the required activities for a typical product. Modification of the process may be required to fit the individual characteristics of specific product development efforts.

1.2 SCOPE

This process applies to all hardware products and systems to be sold by Digital Equipment Corporation. It applies to products that are to be manufactured by Digital as well as those products to be manufactured by Digital's suppliers.

Text under heading 2 covers the product development activities from Phase 0 through Phase 3 of the Phase Review Process defined in DEC STD 028-0. Table 1 shows the product safety activities.

1.3 RESPONSIBILITIES

This subhead defines the responsibilities of Product Management, Design Engineering, Product Safety Engineering, the product supplier (for products designed or built by external suppliers), and the external certification agencies. The process details individual responsibilities; the responsible engineer ensures supplier compliance.

Table 1: DEC STD 028-0 Phases and Milestones As They Relate to Product Safety Activities

DEC STD 028-0 Milestones	Product Safety Activities
PHASE 0: Strategy and Requirements	
Business Plan (Preliminary)	Product Safety Engineering Notification
Market Requirements Document	
Product Requirements Document	Project Identification
Alternatives/Feasibility Examined	
Manufacturing Impact Statement	
Customer Services Impact and Requirement Statement	
PHASE 1: Planning and Preliminary Design	
Business Plan Update	Safety Concept Review
Functional Specification	Product Safety Schedule and Cost Estimate
Project Plan	Project Schedule and Product Safety Funding
Manufacturing Plan (Preliminary)	
Customer Services Plan (Preliminary)	
PHASE 2: Implementation and Design	
Business Plan Update	Prototype Design
Marketing Sales Plan	Prototype Build
Final Detailed Design Complete/Code Frozen	Prototype Review
Verification Test Plans	Design Modification
Manufacturing Plan	Preliminary Agency Review of All Key Issues*
Customer Services Plan	Preliminary Product Safety Testing
Final Prototype/Base Level Built	
Prototype Design Test/Base Level Test Results	
PHASE 3: Qualification	
Business Plan Update	Final Product Safety Review*
Product Announcement Criteria Met	Final Agency Review*
Verification Test Complete/Results Published	Agency Report Issued*
First Shippable Product Available	Certificate of Compliance Issued
First Revenue Ship Criteria Met	Report Review and Filing*
	First Customer Ship/First Volume Ship

* More than one agency may be involved.

2 DIGITAL PROCESS FOR PRODUCT BUILD

2.1 PROCESS DEFINITION

There are 16 product safety milestones that must be addressed during the development of a new product. The following table lists the milestones for each phase and the subhead in this document that describes the milestone.

Table 2: Product Safety Milestones

Phase Review Phase	Milestone	Subhead
0	Notification of Product Safety Engineering	2.2.1
	Project Identification	2.2.2
1	Safety Concept Review	2.3.1
	Product Safety Schedule and Cost Estimate (Optional)	2.3.2
	Project Schedule and Product Safety Funding	2.3.3
2	Prototype Design and Build	2.4.1
	Prototype Review	2.4.2
	Design Modification	2.4.3
	Preliminary Agency Review*	2.4.4
	Product Safety Testing	2.4.5
3	Final Product Safety Review*	2.5.1
	Final Agency Review(s)*	2.5.2
	Agency Report Issued*	2.5.3
	Certificate of Compliance Issued	2.5.4
	Report Review and Filing*	2.5.5
	First Revenue Ship	2.5.6

NOTE

*** More than one agency may be involved.**

The flowchart in Figure 1 shows the relationship of product safety milestones to the product development phases described in DEC STD 028-0. Responsibility for activities on the left side of the chart belong to Product Safety Engineering, while design engineering or product management has responsibility for the activities on the right side of the chart. Those activities in the center portion of the chart are joint activities where design engineering/product management and the Product Safety Engineer (PSE) share responsibility. Each subhead describes a milestone on the flowchart. Boxes with dotted outlines describe activities for which external certification agencies are solely responsible.

Figure 1: Product Safety Milestones in Product Development

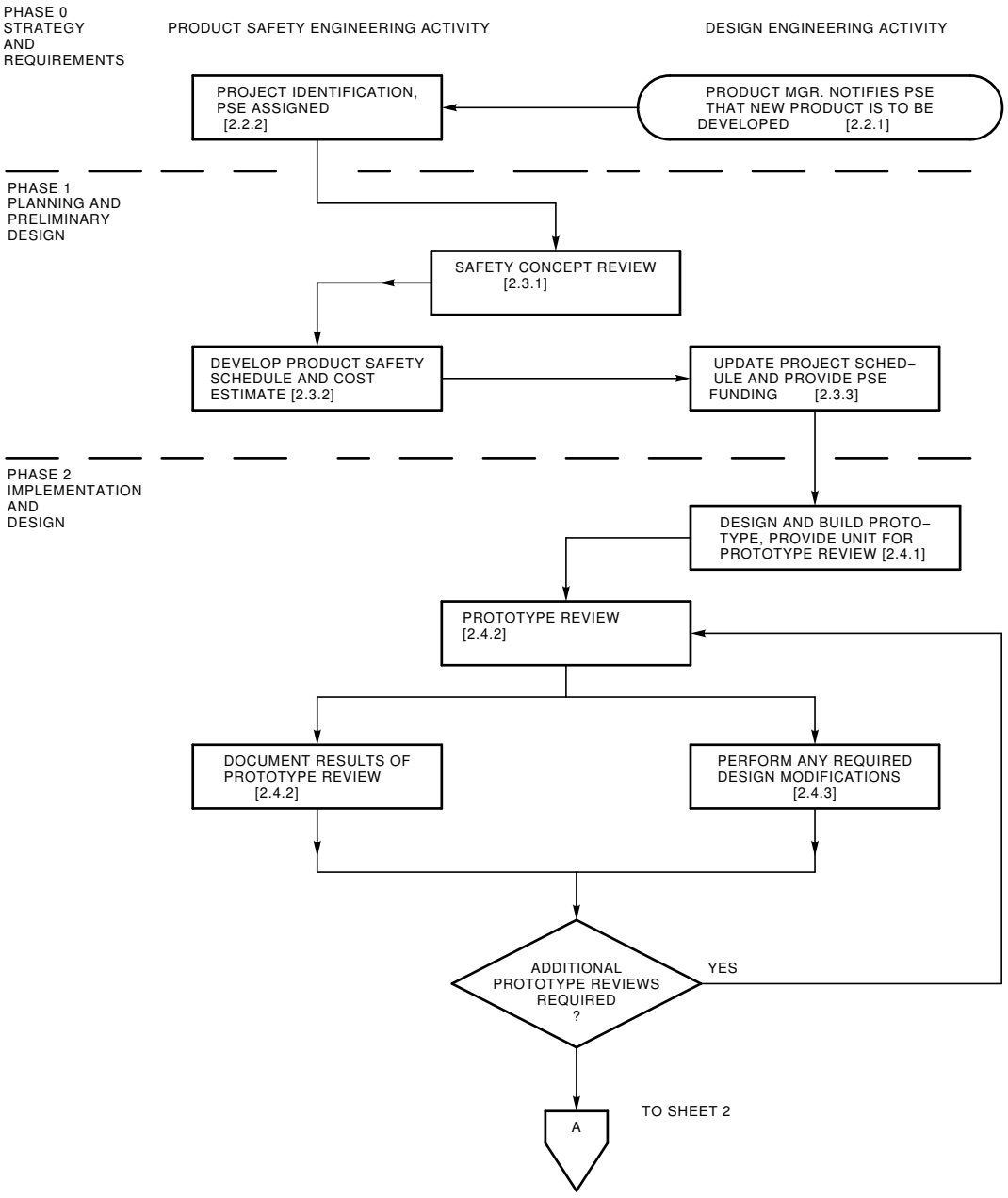


Figure 1 (con't): Product Safety Milestones in Product Development

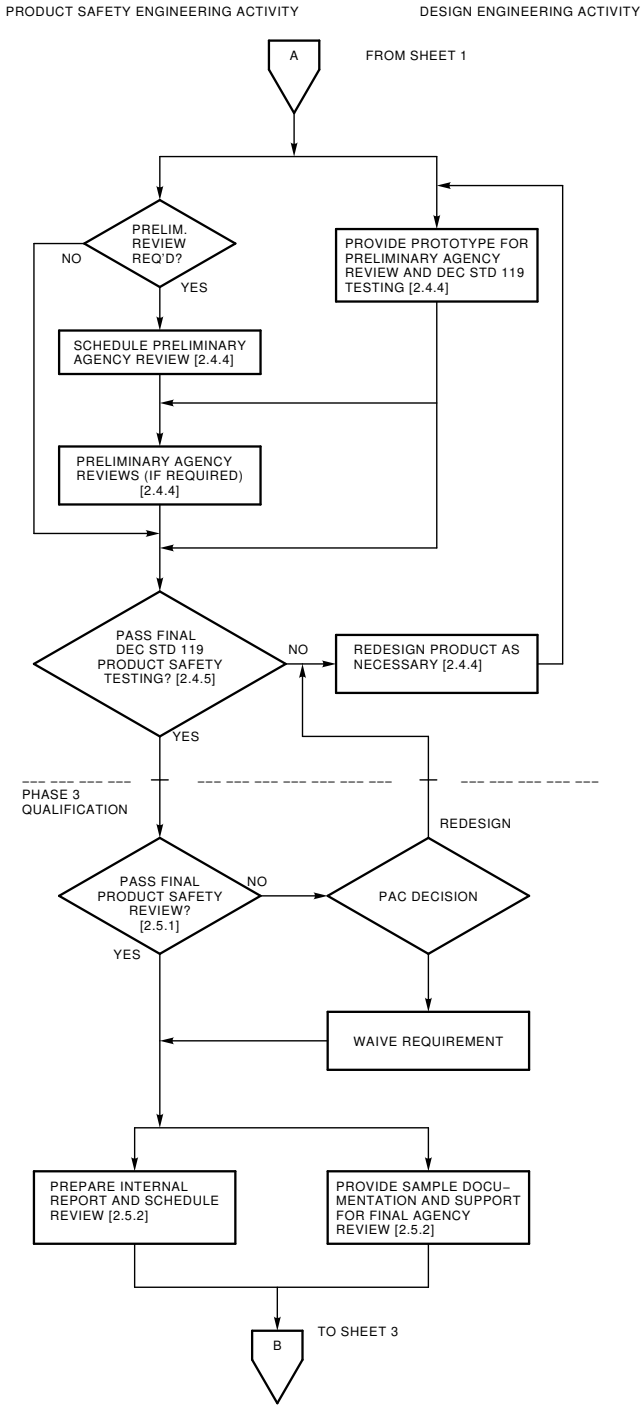
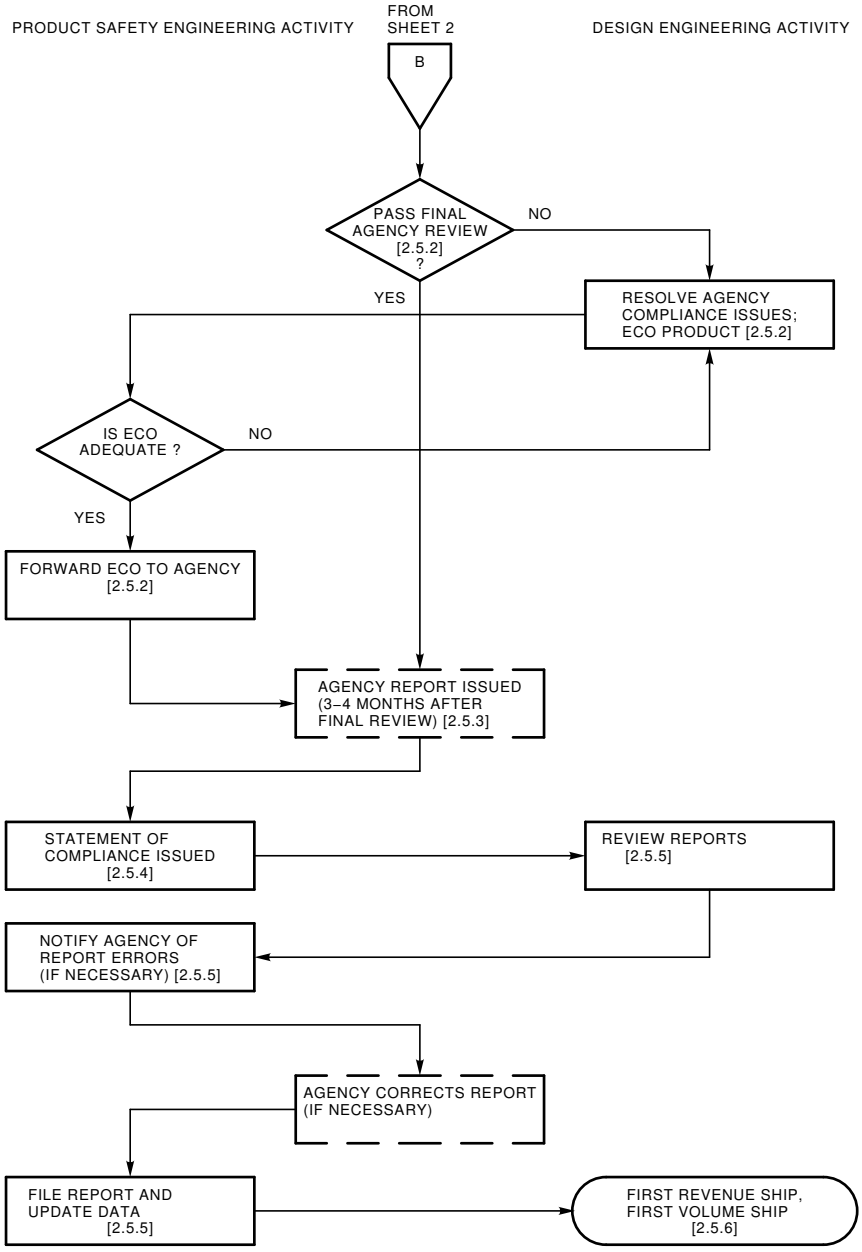


Figure 1 (con't): Product Safety Milestones in Product Development


PRODUCT SAFETY ENGINEERING ACTIVITY
FROM SHEET 2
DESIGN ENGINEERING ACTIVITY
B
PASS FINAL AGENCY REVIEW [2.5.2] ?
NO
YES
RESOLVE AGENCY COMPLIANCE ISSUES; ECO PRODUCT [2.5.2]
IS ECO ADEQUATE ?
NO
YES
FORWARD ECO TO AGENCY [2.5.2]
AGENCY REPORT ISSUED (3–4 MONTHS AFTER FINAL REVIEW) [2.5.3]
STATEMENT OF COMPLIANCE ISSUED [2.5.4]
REVIEW REPORTS [2.5.5]
NOTIFY AGENCY OF REPORT ERRORS (IF NECESSARY) [2.5.5]
AGENCY CORRECTS REPORT (IF NECESSARY)
FILE REPORT AND UPDATE DATA [2.5.5]
FIRST REVENUE SHIP, FIRST VOLUME SHIP [2.5.6]

2.2 PHASE 0—STRATEGY AND REQUIREMENTS

2.2.1 PSE Notification

It is the responsibility of the product manager, responsible engineer, or engineering manager to notify the PSE that development of a new product has begun. Early involvement by the PSE is critical.

2.2.2 Project Identification

When notified that a new product will be developed, the project is logged in and a PSE is assigned to the project. The PSE, with other members of the development team, sets a date for the safety concept review (see subhead 2.3.1).

2.3 PHASE 1—PLANNING AND PRELIMINARY DESIGN

2.3.1 Safety Concept Review

The safety concept review is the first of three product safety milestones in Phase 1. During the safety concept review, the PSE meets with members of the development team (the project manager, if there is one, the responsible engineer, and the product manager) to address the following questions.

- What is the expected application and environment for the product (EDP, office machine, medical, industrial)?
- What are the expected geographic markets?
- Is the product unique (from a product safety standpoint) when compared to existing products?
- What product safety standards will the product be required to meet? Refer to *DEC STD 119-0 Digital Product Safety— Introduction and General Requirements* and *DEC STD 080-0 Digital Product Safety Industrial Control Equipment— Introduction and General Requirements*.
- What external agency certifications will be necessary, and under which standards should the product be reviewed by those agencies?
- Are there long lead time components that will affect product safety certification, and, if so, are they expected to meet component safety requirements?
- Which members of the design team will interface with the PSE, and who will be designated as the team leader?
- Will the product require any special safety testing over and above those tests normally conducted?
- What manufacturing plants (if known) will produce the product, and will they participate in the required agency follow-up inspection programs?
- What distribution centers (if known) will handle the product?
- Does the functional specification reflect all required agency safety certification(s) and compliance to safety standards?
- Has the project plan been written, and if so, does it include product safety milestones?
- What is the expected date for First Revenue Ship (FRS)?

- Is there a charge number available for the PSE, and does the project budget include funding for Product Safety and agency costs?

Many of these questions may be answered by reviewing the information in the Market Requirements Document (MRD) and the Product Requirements Document (PRD) completed during Phase 0.

2.3.2 Product Safety Schedule and Cost Estimate (Optional)

The second milestone for Phase 1 requires the PSE to develop a schedule for completion of the product safety milestones and a cost estimate for Product Safety Engineering support, testing, and agency costs. The schedule should also detail what samples will be required for safety testing and agency review and when they must be made available. This information is forwarded to the product manager.

2.3.3 Project Schedule and Product Safety Funding

The third milestone for Phase 1 requires the product manager to include all product safety milestones in the project schedule. The manager must also make the necessary funding available for Product Safety and agency costs.

Turnaround time for agency reports is a minimum of three to four months after final agency review. It is therefore important that the final agency review milestone be scheduled more than three to four months prior to FRS, if the agency approval is a prerequisite for FRS. See subhead 2.5.2.

NOTE

FRS date is defined as the date the first product ships to a paying customer external to Digital. This date does not include field test units, seed units, or any other condition approved by the Corporation under which a product may be provided to customers.

2.4 PHASE 2—IMPLEMENTATION AND DESIGN

2.4.1 Prototype Design and Build

It is the responsibility of the engineering team, in consultation with Product Safety, to design and build the first prototype to all identified safety requirements. In this way, safety can be *designed in* with a minimal impact on product cost and functionality.

2.4.2 Prototype Review

During the prototype review, the engineering team provides a prototype unit and meets with the PSE to review the unit according to the identified safety standards.

NOTE

EDP and office equipment products are reviewed according to the Design Review Checklist contained in DEC STD 119. The checklist provides a guide to the major product safety requirements of concern. However, design review is not limited to those items included in the checklist. All DEC STD 119 requirements must be considered. Copies of DEC STD 119 may be obtained from Standards and Methods Control (see Referenced Documents).

Noncompliance issues noted during the review are assigned to engineering team members with deadlines for problem resolution. The PSE documents, by memo, all noncompliance issues found during the review, including the names of the team members responsible for resolving the compliance issues and the agreed-upon deadlines. This memo serves as a record to check the progress of the design during the next safety review. The PSE also outlines what safety tests will be required for the product.

2.4.3 Design Modification

It is the responsibility of the engineering team to make necessary design changes to correct noncompliance issues so that the product satisfies the safety criteria. Complex products may require a number of prototype reviews before all identified safety noncompliance issues have been addressed, including new issues that may arise as the design progresses.

2.4.4 Preliminary Agency Review

It may be necessary to have the product reviewed by external test agencies prior to agency submittal and engineering change order (ECO) control of the design (See *DEC STD 100-0 Policy and Requirements for the Product Change Process.*) The preliminary review provides input to the engineering team early in the design process so that changes, if necessary, may be implemented easily and in a cost-effective manner. The preliminary agency review provides many of the same benefits as the prototype review (see subhead 2.4.2). It can also prove helpful if the design includes new safety features or if the product presents conditions or circumstances not covered by the safety standards. A prototype unit and participation by the engineering team is usually required for a preliminary agency review.

2.4.5 Product Safety Testing

Safety tests outlined by the PSE during the prototype review are normally conducted in a qualified Product Safety Test Lab. Attention shall be paid to the following responsibilities and conditions involved in product safety testing.

- The PSE is responsible for completing a test plan and for making it available to the lab coordinator prior to testing the product.
- The engineering team is responsible for special test fixtures or loads and making available the necessary samples, component parts, documentation, and engineering support for the product safety tests.
- The engineering team is responsible for modifying the design of the sample product if it fails to pass the required tests. If the required modifications are extensive, or affect the results of tests already completed, the product may require retest at a later date. Every effort should be made to meet design requirements prior to submittal to the Product Safety lab.
- Safety tests are to be carried out on a sample product that represents the production unit from a standpoint of product safety; it is not always required that the sample product meet all aspects of its functional specification from a performance standpoint.
- Some safety testing is destructive and may damage the sample(s) provided. The engineering team should be forewarned about anticipated destructive testing. The PSE shall inform engineering of any damage caused during safety testing that may render the product unsafe for further use. If the safety of the product sample has been adversely affected during testing, and there are plans to further use that particular

sample, engineering should replace any components or subassemblies that have been damaged or overstressed.

2.5 PHASE 3—QUALIFICATION

2.5.1 Final Product Safety Review

At this milestone, the PSE reviews the design that will represent the manufactured unit. The review ensures that all noncompliance issues identified in the prototype review(s) have been resolved, and that all safety tests have been successfully completed. The PSE may require a meeting with the engineering team, where engineering provides copies of up-to-date drawings and component specifications. It is the responsibility of the engineering team to provide closure on any identified open issues in the shortest possible time. If, for any reason, the design does not fully comply with the identified safety criteria, and it is not possible to institute corrective action, then it may be necessary to:

- Delay the FCS date until the product has been changed by an ECO.
- Limit the geographic market area to exclude localities where the noncompliance issue is prevalent. This limitation is only possible when noncompliance is related to local conditions found in identifiable geographic market areas.
- Place restrictions on the product's operating specifications, operating instructions, or intended application(s).
- Waive the requirements that relate to noncompliance if safety of the product is not adversely affected.
- Place other restrictions on the use or sale of the product as necessary.

The PSE will notify the engineering team and the product manager if the product does not appear to be in compliance with the identified criteria specified in *DEC STD 005-2 Reporting Products Potentially Non-Compliant With Digital Design Standards*. If it is not possible to correct compliance issues in time to affect the first product shipped, a technical waiver may be requested according to *DEC STD 066-2 Waivers to Digital Design Standards*.

2.5.2 Final Agency Review(s)

At this time, the product has been examined and tested for product safety, and the engineering team and the PSE are satisfied that it meets all requirements. The product is now ready for submittal to the external test agencies identified during the Phase 1 concept review as described in subhead 2.3.1.

NOTE

Digital usually submits new EDP and office equipment products to two external test agencies: Underwriters Laboratories, Inc. (UL) and Canadian Standards Association (CSA) for approval to national and international standards. In addition, office equipment products usually are also submitted to TUV for GS marks. These agency certifications are prerequisites for FCS/FVS. For further information concerning required agency certifications, see DEC STD 119-0 heading 3, *DEC STD 060-0 Design of Hardware Products to National and International Regulations and Standards—Policy and Procedures*, and *DEC STD 062-0 Product Submittal to Regulatory Agencies*.

The following responsibilities and conditions must be completed to accomplish the final agency review milestone.

- The PSE must prepare an internal report describing the product, its components, and the results of the product safety testing.
- The PSE must establish a date with the external test agencies to have the product examined. Product examination by the test agency usually takes place in a qualified internal Product Safety Lab. It is possible to send the product to the test agency, however, this alternative is usually more expensive and time-consuming, and is only considered in special cases.
- Engineering is responsible for providing a product sample, documentation, components, and engineering support during the final agency review.
- The representative from the test agency reviews the product, component ratings and component approvals, engineering documentation, and the Product Safety Test data to the requirements of the agency standard determined during the safety concept review described in subhead 2.3.1. Any noncompliance issues identified by the agency representative will be confirmed in a follow-up letter by the agency representative.
- The PSE verifies the validity of any agency-identified noncompliance issues. If not in agreement with the agency findings, the PSE is required to ask the agency for further clarification of their concerns.
- Engineering responds to all valid agency noncompliance issues that may require a change in the product design, that require further information be provided, or when further testing is necessary. If additional testing is necessary, engineering and the PSE should work out a plan to accomplish the additional tests.
- Solutions to agency-identified noncompliance issues must be forwarded by engineering to the PSE for review. The PSE must confirm that the solution addresses the agency concern, and that there are no violations of other internal or external safety requirements before forwarding this information to the agency.

NOTE

The turnaround time for agency reports may be as long as three to four months after the final agency review. This assumes that there were no major noncompliance issues found during the agency review. It is therefore important that the final agency review milestone be scheduled to allow sufficient time prior to FCS/FVS, if the agency approval is a prerequisite.

2.5.3 Agency Report Issued

The test agency, having received all requested information concerning solutions to noncompliance issues, information, or test data that was missing at the time of the agency review, now issues the final agency report. This report is forwarded to the PSE.

NOTE

Reports from UL and CSA, for products that are CSA product certified, will also be forwarded directly to the manufacturing location(s) for the product.

2.5.4 Certificate of Compliance Issued

After receipt of the agency report(s), the PSE creates the *Statement of Design Compliance to Product Safety Requirements* that indicates the safety standards to which the product complies, as determined by internal and external agency examinations. See Figure 2 for a sample of the certificate.† At this time, the Computer Assisted Regulatory Engineering (CARE) data base should be updated with the correct information. If the PSE does not have direct access to the data base, the checklist cover sheet should be checked for completeness before forwarding to Corporate Product Safety as part of the package listed in subhead 2.5.5.

NOTE

After the manufacturing location receives the agency report(s), the agency monograms may be legally applied to the products. Application of monograms is also subject to the contractual agreements between Digital and the test agencies. Strict adherence to contractual agreements is required.

To receive CSA category certification, the following process must take place. CSA may only apply its monogram when a CSA approved manufacturing location receives the information package containing the internal certificate indicating compliance to CSA standards, the internal report, and test data. CSA does not issue a report for category-certified products. In the case of UL Early Authorization, UL monograms will only be applied when a letter of Early Authorization is received from UL.

2.5.5 Report Review and Filing

The following activities and associated responsibilities are necessary to ensure the accuracy and retention of both internal and agency issued product safety reports.

It is the responsibility of the Plant Product Safety Coordinator(s) (PPSC) to review the information package and to notify the PSE of any discrepancies in either the agency or internal product safety reports. Failure to correct errors in agency reports may result in loss of agency certification during the agency's manufacturing follow-up inspection. Requests for report changes should be made on an Agency Change Request. See Figure 3. These requests should be forwarded to the PSE for review and submission to the agency.

The PSE reviews the report and notifies the agency of any errors found so that it may be updated by the agency to accurately reflect the product being manufactured.

- Manufacturing files

  The following data should be provided to the PPSC by the PSE and kept on file at the manufacturing site:

  — The Statement of Compliance—data also available in CARE data base

  — The Digital Internal Product Safety Report including:

  a. Audit report with photos and inspection points

  b. Electrical schematics of ac and safety circuits

† This form is maintained by Bob Johnson, this standard's owner. The latest version of the form, in a format that can be printed on an LN03 printer, may be obtained from the electronic network using this network address: MILPND::CPS2:[GROUP.LIBRARY]CERT_COMP.TXT. Or, photocopies of the form may be made from Figure 2.

Figure 2: Statement of Design Compliance to Product Safety Requirements

digital

STATEMENT OF DESIGN COMPLIANCE TO PRODUCT SAFETY REQUIREMENTS

Issued: _____

Revised: _____

Equipment Designation: _____

The equipment identified above has been examined as a Unit (and/or component) and meets the design requirements of the following Product Safety standards (All components shall be subject to additional safety review in their final applications):

INTERNAL REVIEW by DIGITAL:

[ ] DEC STD 119, Rev. _____
[ ] IEC ____, ___ ed., ___amend.
[ ] EN 60 950, ___ ed., ___amend., European Norm
[ ] NZS 6661:____ New Zealand Standard
[ ] UL ____, ___ ed., rev ____, UL Standard
[ ] CAN/CSA–C22.2, No. _____, gen. inst. #___, CSA Standard
[ ] AS 3260, ___ ed., ___ amend., Australian Standard
[ ] SS 436 14 50, ___ ed., ___amend., Swedish Standard
[ ] Other _____

AGENCY APPROVALS:

CSA: [ ] Category Certified, [ ] Model Certified, [ ] Used D3 Deviations to: _____

TUV: Agency: _____
[ ] Letter of Conformance
[ ] BG marked
[ ] GS marked
License No.: _____

UL: [ ] Listed, [ ] Recognized, [ ] Used Supplement C, [ ] Classified, to: _____ to: _____

File: _____ Volume: _____ Section: _____

Report Dated: _____

[ ] Other: _____

Responsible Product Safety Engineering Group: _____

DESIGN ENGINEER:

> _____ > _____ > _____
Printed Name Signature Date

PRODUCT SAFETY ENGINEER:

> _____ > _____ > _____
Printed Name Signature Date

Product and Product File meet Manufacturing Requirements:
PRODUCT SAFETY COORDINATOR: Prime Plant _____

> _____ > _____ > _____
Printed Name Signature Date

DIGITAL INTERNAL USE ONLY

form: MILPND::CPS2:[GROUP.LIBRARY]CERT_COMP.TXT

c. Marked-up etch layout drawings for spacing checks

d. Other information chosen by the PSE

NOTE

Test data is excluded from this list.

— Appropriate agency reports (also available on-line as scanned images)

UL	Provided by Underwriter's Labs
CSA	For category certification, the CSA Product History Record (See Figure 4) to accompany the Digital report; or For model certification, the CSA certification report in which case CSA provides report.

NOTE

The CSA Product History Record may not be available for FCS. It is generated during CSA Engineering reviews on following visits. When the report is generated and following each further revision, copies shall be forwarded by the PSE to all PPSCs manufacturing the product.

TUV and other agencies	Report or certification letter as appropriate

- Corporate

  The following shall be sent to Corporate Product Safety for filing, recordkeeping, and online data access:

  — A copy of the above manufacturing files

Statement of Compliance	Available as paper files, on-line as scanned image, and as data in CARE data base
Digital Internal Report	Available on-line as scanned images or in native format such as ASCII or DECwrite
Agency Reports	Available as paper files and scanned images
CSA Product History Record	Available on-line as scanned image

  — Checklist (including any followup or resolution correspondence)

Cover page	Available on-line in CARE database
Remainder	Available as paper files

  — Test data—available on-line as scanned images (or ASCII data if available)

  — Component test data in application when used outside specifications

  — Critical components list—to include parts whose supplier name appears in the reports, transformers, boards with spacing concerns, labels with safety information, manuals containing safety information, other parts whose change may affect safety.

Critical Components List	Available on-line in CARE data base
Specifications	Available in Specs on Computer (SPOC; Technical Information Services)

- Engineering Files

  The following and additional copies of the above material may be kept by the Product Safety Engineer if desired. They may be useful for file maintenance or updates, but are not required recordkeeping:

  — Schematics and drawings not included in the reports

  — Obsolete report pages

  — Manuals

  — Engineering development information

  — Component specification hard copies

2.5.6 First Revenue Ship, First Volume Ship

Having received all necessary internal and external examinations to verify compliance with internal and external safety standards, the product reaches the final milestone and may be shipped to the customer. Agency monograms are applied to the product before it is shipped from the point of manufacture. See subheads 2.5.2 and 2.5.4.

Figure 3: Agency Change Request

DIGITAL logo

DIGITAL EQUIPMENT CORP. UL/CSA CHANGE REQUEST	Prime Plant has been notified: Prime Plant: Date:		
Originator's Name:	Client Code:	Phone:	Date:
Mailing address including mailstop:			
Equipment Identification:			
UL/CSA File Number:	Volume:	Section:	

Page/Item No.	Change Description	Reason for Change

Figure 4: CSA Category Certification

CSA CATEGORY CERTIFICATION
PRODUCT HISTORY RECORD

Equipment type :
Model No :
Electrical Rating :
Certified by :
Certification Date:

Equipment Revisions		CSA Reviews		
No.	Date	Date	By	

NM1/CCPHR/1/cb

3 SUPPLIER-BUILT PRODUCTS

The objective of the Product Safety Buyout Policy is to ensure that all buyout products:

- Maintain a level of safety that is equivalent to Digital's Product Safety standards
- Are introduced with the minimum impact on time to market
- Continue to maintain Digital's reputation as a quality supplier
- Minimize the potential for costly product recalls and Digital's exposure to potential product liability suits

The scope of the Product Safety Buyout Program is worldwide for stand-alone buyout products.

According to the Product Safety Buyout Policy, buyout products must have a level of safety that is equivalent to Digital's internally designed products and as a minimum must:

- Meet the safety requirements for "Information Technology Equipment" as set forth in UL, CSA, and IEC Standards.
- Have the same third-party product safety certifications that are required for internally designed and manufactured products, and third-party supporting certification documentation must be available to Digital personnel upon request.
- Be purchased under terms where:
  - Safety compliance and documentation access provisions are included, and
  - Both Digital and the insurance companies that underwrite Digital's legal liability insurance coverage have the right, but not the obligation, to audit the supplier's product safety program.

Various groups within Digital have responsibilities associated with the Product Safety Buyout Policy. These responsibilities are:

- The Corporate Risk Management Group ensures that there is a buyout approval policy in place. The group works with Corporate Product Safety and Regulations to develop policies and procedures.
- The Corporate Product Safety and Regulations manager maintains this policy and performs audits where and when it is deemed appropriate.
- The Purchasing Law Group is responsible for ensuring that appropriate contractual provisions reflecting the needs of this policy are in place for buyout procurements.
- Digital's Product Managers are responsible for implementing this policy when buyout Products are part of their product development strategy. Implementation shall include, as a minimum:
  a. Ensuring that a level of safety equivalent to that required of Digital's internally designed products are included in buyout product purchase specifications.
  b. Establishing as part of the Project Management Team a cognizant Group Product Safety Engineer who will coordinate product safety issues Corporately, with corresponding representatives for other geographies.
  c. Working with Purchasing and Digital Services to ensure that the level of safety in the buyout product is acceptable for product servicing.

3.1 SPECIAL CONSIDERATIONS

Supplier-built products are required to meet the same requirements as a product that is designed and built by Digital. Supplier products usually present special problems during product development and safety verification or certification for the following reasons.

- The engineering team that designs the product is not within Digital, complicating communication between the two parties.
- Digital may be purchasing a product that is already being manufactured and sold by the supplier. This situation makes any necessary product design modification required by Digital more difficult to accomplish. The supplier must consider changes not only to the design, but also to its manufacturing process and to the materials and components in its stock room.
- The supplier may not be familiar with Digital's safety requirements, and may not have the required agency certifications.
- The supplier may be inexperienced in obtaining the necessary agency certifications, and may require a longer than normal time period to accomplish this milestone. This may adversely affect Digital's FCS date.

3.2 SUPPLIER PROCESS FOR PRODUCT BUILD

To accomplish safety evaluation and certification of supplier-built products, the process described in heading 2 should be followed with these exceptions.

NOTE

The responsible engineer must ensure supplier compliance.

- The Safety Concept Review (see subhead 2.3.1) pays special attention to the purchase specification. The purchase specification must require that the product comply with all necessary internal and external product safety standards. It must also require the product be approved by the external test agencies acceptable to Digital Product Safety. The purchase specification must require the supplier to obtain and maintain these certifications as evidenced by application of agency monograms to the product. The supplier must provide Digital with copies of agency-issued reports and certificates that verify certification.
- The product management must provide a reasonable method for the PSE to communicate with the supplier so that the results of internal product safety examination and testing can be communicated, and the supplier's response to compliance issues can be determined. It is also the responsibility of product management to communicate to the supplier all of its responsibilities as described in the following paragraphs, and to ensure that these activities are completed according to the product safety and project schedules as described under subheads 2.3.3 and 2.4.1.
- The supplier is responsible for the prototype design and build milestone (see subhead 2.4.1).
- The supplier is responsible for providing the prototype unit for the Prototype Review milestone (see subhead 2.4.2) and for reacting to any noncompliance issues identified during this review, as described in the Design Modification milestone (see subhead

2.4.3). This review is typically the responsibility of the supplier but may be supported by Digital Product Safety.

- The Preliminary Agency Review (see subhead 2.4.4) and the Final Agency Review (see subhead 2.5.2) are the responsibility of the supplier, who must also make arrangements for all agency involvement.
- The supplier is responsible for providing samples for the Product Safety Review and, if necessary testing (available test data may be sufficient) (see subhead 2.4.5) conducted by the PSE, and for design modification, should the sample fail any of the required tests. The supplier is also responsible for providing the required documentation and specifications for the Final Product Safety Review (see subhead 2.5.1). If necessary, available test results may be sufficient.
- The supplier is the recipient of the agency reports (see subhead 2.5.2) and must provide the PSE with copies of the Product Safety Test results.
- The supplier reviews the agency reports (see subhead 2.5.2) for accuracy; the PSE reviews the reports to ensure they identify the product Digital is purchasing.
- The PSE is responsible for the report review and filing (See subhead 2.5.5), which in this case consists of a minimum of a Statement of Compliance and the checklist cover page. Additional information available to the PSE should be handled as described in subhead 2.5.5.

APPENDIX A REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00005-02	*DEC STD 005-2 Reporting Products Potentially Non-Compliant with Digital Design Standards*
EL-00028-00	*DEC STD 028-0 Phase Review Policy*
EL-00060-00	*DEC STD 060-0 Design of Hardware Products to National and International Regulations and Standards, Policies and Procedures*
EL-00062-00	*DEC STD 062-0 Product Submittal to Regulatory Agencies*
EL-00066-02	*DEC STD 066-2 Waivers to Digital Design Standards*
EL-00080-00	*DEC STD 080-0 Digital Product Safety Industrial Control Equipment - Introduction and General Requirements*
EL-00100-00	*DEC STD 100-0 Policy and Requirements for the Product Change Process*
EL-00119-00	*DEC STD 119-0 Digital Product Safety—Introduction and General Requirements*

Use VTX SMC to order copies of EL-class documents from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

APPENDIX B RELATED DOCUMENTS

B.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00080-01	*DEC STD 080-1 Digital Product Safety Industrial Control Equipment - Design Criteria*
EL-00080-02	*DEC STD 080-2 Digital Product Safety Industrial Control Equipment - Test Methods*
EL-00119-01	*DEC STD 119-1 Digital Product Safety — Design Criteria*
EL-00119-02	*DEC STD 119-2 Digital Product Safety - Test Procedures*
EL-CP060-01	*Design and Certification of Hardware Products to National and International Regulations and Standards - Specific Requirements*
EL-CP356-00	*Corporate Phase Review Process Guide*

Use VTX SMC to order copies of EL-class documents from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

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